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HESSE, CAROL	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/517,299	JONES ET AL.	
	Examiner	Art Unit	
	Carol Hesse	2876	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 December 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-48* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-48* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07 December 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *07 December 2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Detailed Action

Applicant cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Status of the Application

If applicant is aware of any prior art or any other co-pending application not already of record, he/she is reminded of his/her duty under 37 CFR 1.56 to disclose the same.

Claim Objections

1. Claim 10 objected to because of the following informalities: "the substrate," of the first line in claim 10, "substrate" is not a term previously used. Appropriate correction is required

2. Claim 30 objected to because of the following informalities: "vs." of claim 30, line 30 should be spelled out instead of abbreviated. Appropriate correction is required.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 31, 37, 41, and 47 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Regarding claims 31, 37, and 41, the phrase "including but not limited to" renders the claims indefinite because the claims include elements not actually disclosed (those encompassed by "including but not limited to"), thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d).

3. Regarding claim 47, the claim indicates that an alterable characteristic is selected from a group consisting of (a)-(d), however, groups (a), (b) and (d) also specify several characteristics listed in alternative form. It is unclear what the applicant means the group to consist of. For instance, if group (d) is chosen, does it mean that the alterable characteristic chosen is changing with time when exposed to heat? Changing with time when exposed to light? Or changing when in contact with a solvent? Additionally, regarding group (d) of claim 47, stating "wherein the characteristics that can be modified in each of said tags...consist of (d) **ability to change** with time or when exposed to conditions such as heat..." never actually points out what it is about the tag that is changing, which also makes this claim unclear. Does the intensity of emission change? Does the emitted color change; does the tag still exist after exposure to the solvent?

4. Claim 37 follows that same form as 47, where an illumination source is selected from an alternative list of lamps, or and alternative list of lasers.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-3, 5, 8-16, 20-21, 23-30, 32, 37, and 46-48 are rejected under 35 U.S.C. 102(e) as being anticipated by Reed et al. (Publication No.: US 2002/0090112 A1).

6. With respect to claims 1, 21, 25, 29, 30, Reed et al. disclose:

- A system/method for product or document authentication used to detect the presence of one/{two} or more luminescent /fluorescent dyes, {the combination yielding a unique identifier}, wherein dyes are applied to product or document (p. 1, para. 0004-0007, p. 4-5, para. 0054)
- One or more luminescent or fluorescent tags applied/labeled to product or document (p. 3, para. 0033)
- An optical scanning component for detecting/measuring a signal emitted by tag (p. 3, para. 0034) after tags are illuminated with one or more appropriate energy sources (p. 4, para. 0047)
- An information technology component for analyzing signal (p. 4, para. 0044, the computer must make a comparison since degradation of the watermark can be detected, p. 4-5, para. 0054, additionally disclosed is a data structure of luminance values, color signals, p. 5, para. 0066).

7. With respect to claims 2 and 26, Reed et al. disclose claims 1 and 25, respectively, and:

- At least one of the tags has an emitted signal of known time resolution (p. 3, para. 0033).

8. With respect to claims 3 and 27, Reed et al. disclose claims 2 and 25, respectively, and:

- The known time resolution is the time to decay to a predetermined value (p. 3, para. 0033).

9. With respect to claim 5, Reed et al. disclose claim 2, and:

- At least one of said tags is selected from the group consisting of dyes, inks, and pigments (p. 2, para. 0027).

10. With respect to claim 8, Reed et al. disclose claim 2, and:

- The known time resolution corresponds to an exponential or sum of exponential functions with decay constants (1/e) that fall in the time window of 1 microsecond to 1 second (p. 2-3, para. 0029-0031).

11. With respect to claim 9, Reed et al. disclose claim 1, and:

- The tag has characteristics that can be detected as an image, a wavelength, a decay time, or a combination thereof (p. 4, para. 0044, p. 3, para. 0033).

12. With respect to claim 10, Reed et al. disclose claim 1, and:

- A substrate on which the tag is deposited is selected from the group consisting of paper, cloth, plastic, metal, thread, metal, films, label or card stock, and printing inks (p. 4, para. 0044, p. 3, para. 0036).

13. With respect to claims 11 and 28, Reed et al. disclose claims 1 and 25 respectively, and:

- At least one of said tags is invisible to the human eye (p. 2, para. 0027).

14. With respect to claim 12, Reed et al. disclose claim 1, and:

- One or more of the tags partially or completely overlaps another of the tags when applied to the product (the tags must overlap in order to product the canceled signal, p. 3, para. 0035-0036, 0041).

15. With respect to claim 13, Reed et al. disclose claim 1, and:

- Information technology component is capable of resolving the signal detected by optical scanning system into components, each of which can be further analyzed, analysis comprises identification of spectral characteristics of component as a function of time (a specific time period of the sensor being on can be analyzed, Fig. 3, Fig. 4, p. 3, para. 003-0034).

16. With respect to claim 15, Reed et al. disclose claim 13, and:

- Further analysis also includes determination of whether the tag is authentic (computer reads watermark to determine if the product is counterfeit, p. 4, para. 0047, 0054).

17. With respect to claim 16, Reed et al. disclose claim 1, and:

- The optical scanning component comprises a light source, tag, scanner, and information technology system (p. 4, para. 0047).

18. With respect to claim 17, Reed et al. disclose claim 1, and:

- The tags are applied at different times (first tag is printed with one plate, then a second tag is printed with another plate, p. 3, para. 0036).

19. With respect to claim 20, Reed et al. disclose claim 1, and:

- Comprising two or more tags (short decay and long decay, p. 2, para. 0029-0030).

20. With respect to claim 23, Reed et al. disclose claim 21, and:

- The tag has an emitting signal of known wavelength band (p. 5, para. 0058) and known decay time (p. 3, para. 0033).

21. With respect to claim 24, Reed et al. disclose claim 1, and:

- The tag is applied to a substrate using a method of printing, including offset, flexographic, or screen printing (p. 3, para. 0036, p. 5, para. 0063).

22. With respect to claim 32, Reed disclose claim 30, and:

- At least one of the tags is near-infrared dye (p. 2, para. 0027).

23. With respect to claim 33, Reed et al. disclose claim 30, and:

- The luminescence of dye tags is recorded using a spectrophotometer (intensity of emission is measured, p. 3, para. 0034, additionally another component of the invention contemplates the dye of different wavelength bands identified, therefor the detector would have to have a spectra identifying component, spectrophotometer, p. 5, para. 0058).

24. With respect to claims 34 and 35, Reed et al. disclose claim 30, and:

- The decay time of luminescence and luminescence peak intensities for dye tags are used to establish a comparison of treated and untreated samples

(one security feature of the tag is that it is invisible due to wave emission cancellation when untreated based on the peak intensities having opposite peak values at the same time Fig. 1, p. 3, para. 0031, decay times for the tags are set p. 2, para. 0029-0030, another feature is that detector readable emission occurs after the tag is treated with electromagnetic radiation, pulse, from the light source, p. 3, para. 0033-0034, based on the received emission from the tag during the time range, validity of the tag is determined, p. 4-5, para. 0054, therefore a comparison must be made of these two features in order to determine the authenticity of the product).

25. With respect to claim 37, Reed et al. disclose claim 30, and:

- The dye tagged samples are irradiated before spectral analysis using laser sources that include solid state (Laser UV diode, p. 3, para. 0041).

26. With respect to claim 46, Reed et al. disclose claim 25, and:

- The product or document is additionally treated with light (p. 4, para. 0047).

27. With respect to claim 47, Reed et al. disclose claim 1, and:

- Characteristics that can be modified in each of the tags is selected from the group consisting of (a) dye, pigment or ink, (b) size or shape, (c) position of one tag in relation to another, and (d) ability to change with time or when exposed to conditions such as heat, light or contact with a solvent (p. 2, para. 0027-0030).

28. With respect to claim 48, Reed et al. disclose claim 16, and:

- The optical scanning component utilizes photoexcitation created by one or more pulsed light sources (p. 4, para. 0044, 0051).

29. Claims 40-41 are rejected under 35 U.S.C. 102(b) as being anticipated by Berson et al. (US Patent No.: 5,502,304).

30. With respect to claims 40-41, Berson et al. disclose:

- Metal chelates in which the metal center, a lanthanide element including europium, terbium, samarium, neodymium, or ytterbium, is coordinated to one or more ligands, that display charge transfer absorption bands (col. 3, line 62-col. 4, line 53).

Claim Rejections - 35 USC § 103

31. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

32. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

33. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

34. Claims 4, 6-7, 19, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reed et al. (Publication No.: US 2002/0090112 A1) as applied to claims 1 and 30 above, and further in view of Berson et al. (US Patent No.: 5,502,304).

35. With respect to claim 4, 6-7, 19, 31 Reed et al. disclose claim 1 above, and the tag comprising a lifetime modifier (watermark decay extinction time range be modified to suit needs, p. 2, para. 0029-0030).

Reed et al. fail to disclose the composition of the luminescent tag compound(s).

Berson et al. disclose at least one of the tags is a mixture of more than one compound (complex), the tags is a mixture of a luminescent compound and a luminescence lifetime modifier, the luminescent compound is a lanthanide chelate including europium, terbium, samarium, neodymium, ytterbium (col. 3, line 62- col. 4, line 16, col. 4, lines 44-47).

It would have been obvious at the time the invention was made to modify Reed et al. with Berson et al. because the composition provides narrow emission bands, therefore reducing interference (col. 4, lines 8-27).

36. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Reed et al. (Publication No.: US 2002/0090112 A1) as applied to claim 1 above, and further in view of West (US Patent No.: 5,005,873).

Reed et al. fails to disclose that the tags can be applied at the same time.

West teaches applying two different tags at the same time by mixing the first and second tag materials in a homogeneous mixture for application (West, col. 5, lines 57-68).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify Reed et al. such that tags be applied at the same time in order to reduce the number of steps of a manufacturing sequence.

37. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Reed et al. (Publication No.: US 2002/0090112 A1) as applied to claim 21 above, and further in view of Diamandis (US Patent No.: 5,854,008).

38. With respect to claim 22, Reed et al. disclose claim 21.

Reed et al. fails to disclose an identity of a lifetime modifier of the tag.

Diamandis teach a marker consisting of lanthanide chelates and carboxylic acids.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify Reed et al. with Diamandis because the lanthanide chelates are sensitive time-resolved fluorometric markers useful for commercial

application (col. 1, line 64- col. 2, lines 25), and the carboxylic acid results in better detection because of amplified fluorescence (col. 4, line 55-col. 6, line 21).

39. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Reed et al. (Publication No.: US 2002/0090112 A1) as applied to claim 30 above, and further in view of Wickersheim et al. (US Patent No.: 4,652,143).

40. With respect to claim 36, Reed et al. disclose claim 30,

Reed et al. fail to disclose that the tag be heated before analysis at 50-250 degrees Celsius.

Wickersheim et al. teach the use of luminescent material deposited on a substrate, which is attachable to a subject (luminescent tag, col. 4, line 47, col. 5, line 10, and col. 13, line 5). The effect of heat on the luminescence of the tag is known, and is used to determine the surface temperature of a subject to which the tag is attached (col. 5, lines 31-36, col. 7, line 59- col. 8, line 11) by reference to a corresponding luminance-temperature values in a table (col. 10, lines 31-47).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify Reed et al. with the teachings of Wickersheim et al. in order to provide an additional variable as a security feature, and way to verify that the tag is not counterfeit. A method in which a sample is heated to a known temperature, a spectra taken by a detector, and a comparison made of the luminance of a sample to a table of temperature-luminance values, is simply using the luminance-temperature table of Wickersheim et al. in the reverse order, and therefore would have been obvious. As for a spectral analysis taken between a temperature of 50 to 250 degrees Celsius, a

temperature range is truly arbitrary so long as the corresponding luminance value is known, and therefore also obvious to a person of ordinary skill. Furthermore, heat sensitive inks have long been used to check the authenticity of a subject (see Chang, Patent No.: 5,427,415, col. 12, lines 17-37, using latent image ink sensitive to heat to become visible is applied to checks).

41. Claims 38-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reed et al. (Publication No.: US 2002/0090112 A1) as applied to claim 30 above, and further in view of Molina (US Patent No.: 3,777,157).

42. Reed et al. discloses claim 30.

Reed et al. fails to disclose washing the tagged samples with a solvent, or an identity of solvent, before spectral analysis of the tag.

Molia teach the fluorescent material deposited on a subject be washed with water (col. 2, lines 20-66).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify Reed et al with Molia for the advantage of detecting cracks and flaws on a surface (col. 4, lines 8-26), such testing would lend it's self well to validating the authenticity of a subject.

43. Claims 42-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berson et al. (US Patent No.: 5,502,304) as applied to claim 40 above, and further in view of Frank et al. (US Patent No.: 4,283,382).

44. With respect to claims 42-45, Berson et al. disclose claim 40 and substutients can be sulfornic groups, hydrocylic, OH (col. 4, lines 40-43).

Berson et al. fails to disclose the composition having aromatic rings, the identity of electron withdrawing groups.

Frank et al. teach that the ligand is composed of aromatic rights with electron donating substituents selected from –OH, -OR, -O-, -NH2, -NR2, -NHR, -CO2-, -SO3-, and SR, rings having electron withdrawing groups selected from ketone, carboxyl (for instance, acetylacetonate -O-,diketone contains two ketones containing carbonyl groups, many possible compositions are listed, col. 3, lines 28-52).

It would have been obvious to a person having ordinary skill in the art to modify Berson et al. with Frank et al. because these compounds are long known in the art and serve to produce long lifetime fluorescence (col. 3, lines 28-52).

Conclusion

45. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Gonzales et al. (Patent No.: US 6,380,547 B1) disclose a fluorescent tag where a spectral signature is taken and compared to a table in order to detect fraud.
- Ligas et al. (Patent No.: 5,289,547) disclose a method for detecting authenticity of an subject by detecting photochromic color changes.
- Thomas III et al. (Patent No.: US 6,264,107 B1) disclose a luminous tag for detecting authenticity in which the luminance decay is measured.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carol Hesse whose telephone number is 571-272-9788.

The examiner can normally be reached on Monday-Thursday 7:30-5:00, e/o Friday 7:30-4:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Lee can be reached on 571-272-2398. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CH

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